Remarks by T. Keith Glennan,
Administrator, National Aeronautics & Space Administration,
At Opening of Briefing on NASA for
Strategic Air Command Leaders, Headquarters, SAC,
Offutt Air Force Base, Omaha, Nebraska, September 28, 1960

General Powers, gentlemen:

We have a lot of ground to cover today. But before getting under way, I want to thank you, personally and on behalf of my colleagues, for giving us this opportunity to exchange with you and members of your staff information on programs for the exploration and utilization of space. While our program is centered around the conduct of research and development for peaceful purposes -- as the Space Act puts it -- we recognize that the results of our efforts will be of interest and of use to the military departments. Indeed, the law requires that the results of

our programs be made available fully to the military services. The Strategic Air Command operates today at the interface between aeronautics and space. It is highly probable that space systems will be operating in support of your activities within a few short years. Thus, I suspect your interest in this area is and will continue to be very great. On our part, we gain greatly from the activities and support of the military services and ~~shall be glad to continue these exchanges~~ look forward to periodic discussions with you in the future.

The key Program Directors of NASA are here with me to present this story.

We will have time for questions at the end of the briefing. The presentation is being taped. We will edit these tapes and return a transcript to you as soon as possible for your own further distribution. The classification is CONFIDENTIAL.*

* Presumably the confidential portion was General O'Strander's portion of the briefing, referenced on p. 4

Mr. Ralph W May, Asst Chf - Aerodynamics and Flight Mechanics.
~~Mac~~, ~~Deputy Director~~ of that same office,

Dr. Clark Randt, Director of the Office of Life Sciences Programs, and

Major General Ostrander, on loan to NASA from the Air Force and serving very effectively as Director of the Office of Launch Vehicle Programs. General Ostrander, in addition to describing his own programs, will discuss the USAF-NASA inter-face relationships in some detail.

As a means of focusing responsibility for the development of a space program, President Eisenhower, on April 2, 1958, requested legislation creating a special agency as an arm of the civil government. In making this request, the President followed the recommendations of the Killian Committee on which all segments of the Executive Branch were represented. Responsive to that request and after substantial debate, the National Aeronautics

and Space Administration was established by an act of the Congress ~~and~~ as Public Law 85-568 was signed by the President on July 29, 1958. NASA is an independent office of the Executive Branch and is headed by an Administrator reporting directly to the President.

In the policy declaration of the Space Act of 1958, the Congress stated that the exploration of space should be undertaken for peaceful purposes for the benefit of all mankind and established the responsibility for that activity in a civilian agency -- NASA. The Act reserves to the Department of Defense, however, the development of devices and systems which are primarily related to the defense of the United States, including the research and development activities pertinent to that task. Having thus established a ~~battle field~~ dichotomy the Act made the President responsible, in effect, for the day-to-day operations of both programs including the task of settling disputes between NASA and the DOD, provided

provided a Space Council to advise him on his duties in this area and in developing a national space program, and established a Civilian-Military Liaison Committee to serve as a communications channel between the agencies.

After nearly eighteen months of operation under the Space Act of 1958, the President, in January of this year, recommended to the Congress that certain changes be made to clarify the division of responsibilities between NASA and the DOD. In particular, and in the light of progress made in allocating responsibilities for program elements, he recommended the elimination of those provisions of the Act which seemed to require his personal day-to-day administration and the attendant advisory mechanism established by the Act -- the Space Council.

In an attempt to make the Space Act the organic law establishing clearly the responsibilities of NASA for space

exploration and exploitation for peaceful purposes, NASA and the DOD agreed on language proposed to the Congress by the President eliminating the Civilian-Military Liaison Committee but providing that the Department of Defense in no way would be restrained from the utilization of space for purposes of primary concern to the military including the research and development pertinent to that type of activity.

The House passed a bill substantially in the form requested adding only a section calling for the establishment of a coordinating board which Secretary Douglas and I had agreed upon and were in the process of establishing. This Board, now in operation under the co-chairmanship of Dr. Dryden of NASA and Dr. York of the DOD, is composed of top level management people in each organization who serve as chairmen of working panels. Panels have been established in six areas -- launch vehicles, manned space flight, space flight ground environment, unmanned spacecraft, aeronautics, and supporting space research and

technology. It is our expectation that we can settle issues and take prompt implementing action by having top management involved in the arguments as they occur. Thus far, the hopes we have for the effectiveness of this mechanism seem fully justified.

Unfortunately, the Senate failed to act on the proposed bill in the confusion and frustrations of the post-convention session. It appears, then, the whole process must be repeated in January next year. In the meantime, we are operating in the organization and management sense much as though the law had been amended as requested.

As to resources, the National Aeronautics and Space Administration was formally established and began to function as of October 1, 1958 -- almost exactly 2 yrs ago. Our total available funds for the fiscal year ending June 30, 1959, amounted to slightly more than $325 million. On the last fiscal year we had available 524 million. This year, we will spend or commit about $915 million, or nearly three times our initial budget. Our estimates for next year are in the range of four times, or about $1.25 billion, and in fiscal '63, five times, or about $1.5 billion. We now have in our Washington Headquarters and nine field installations a total of almost 19,000 people including the

employees of the Jet Propulsion Laboratory, which is operated by Cal Tech under contract to NASA.

The nucleus of the NASA organization was, of course, the organization of the National Advisory Committee for Aeronautics. ~~and~~ Anyone interested in flying is familiar with the record of accomplishment of the NACA. Facilities inherited from NACA include the great research centers at Langley, Lewis and Ames, the Flight Research Center at Edwards, where NASA and the Air Force and the Navy are hard at work on the X-15 research program, and the rocket launching facility at Wallops Island, Virginia. By transfer from the Army, NASA acquired the Jet Propulsion Laboratory on January 1, 1959 and the von Braun Development Operations Division of ABMA on July 1, 1960. In addition, we are building and have started to occupy the Goddard Space Flight Center at Greenbelt, Maryland, which will have a staff of 2,400,

we and have established a Launch Operations Directorate ~~composed of~~ staffed by nearly 500 men at Cape Canaveral.

When we speak of program, we usually discuss three or four principal areas of activity. First is manned space flight of which the ~~first~~ initial phase is Project Mercury. Dr. Silverstein will discuss this project and subsequent projects now in the planning and preliminary design stage.

A second principal area is that called by the term "space science." It includes a program of lunar and planetary exploration. Here we are seeking to learn all we can about outerspace -- the radiation, gravitational and magnetic fields, the earth-sun relationship, the incidence and character of micro meteorites and a variety of physical phenomena. This is a fundamental program without which we will not have available to us the information on which to base the design for manned vehicles intended for flight to the moon and into deep space.

The third major element is our program for development and exploitation of earth satellites such as Tiros for weather reconnaissance photography and Echo for communications. These are but the first generation of experiments in these areas of application, much as Transit I and II are first steps in the development of a reliable navigation system by the Navy.

Each of these three programs, unmanned investigation of earth environment and space, unmanned technological utilization of space for practical purposes, and manned space flight, depends upon the development of spacecraft with elaborate instrumentation; launch vehicles of enough thrust to launch them; and tracking and data acquisition networks.

Some of these latter activities might be thought of as support programs, even though they involve the expenditure of large sums of money. However they may be categorized, the scientific and technological payoff from them is sure to be of primary importance and value.

In saying this, of course, we assert only that the end objective we seek is new knowledge and the useful application of that knowledge rather than new rocket systems as an end in themselves.

Our Life Sciences Program has the dual mission of supporting and implementing manned space flight as well as the undertaking of biological investigations into the effects of extraterrestrial environments on living organisms and the search for extraterrestrial life. Naturally, we will depend heavily on the human engineering and aeromedical work of the Armed Services as Dr. Randt will tell you.

Underlying all of this activity and supporting and guiding our development activities are the efforts of our Research Centers. Wide ranging programs of basic and applied research in materials, aerodynamics and flight mechanics, structures, noise and the fundamentals of nuclear, ion and rocket propulsion are occupying the attention of almost 8,000 people in Mr. Abbott's Advanced Research area. You will hear more of this from him and from Mr. May.

The philosophy that has guided us in the development and implementation of this program is one that takes into account the hard facts of life coupled with great faith in our ability to win when we, as a people, are sufficiently aroused. Limited in thrust and thus unable to match the Soviets in a weight lifting contest, we have employed the ingenuity of our own people, of the military people active in this area, and of American industry to move ahead on a broad front of space investigation. It is a fact that almost every shot we have attempted thus far has taxed to the limit -- and in some few instances, even exceeded the limit -- of the thrust capability available to us.

While doing this, we have undertaken, with the excellent cooperation of the Air Force, the development of more powerful and more versatile launch vehicles. In fiscal 1961 almost half of our available funds are going into our launch vehicle development program. General Ostrander will discuss these activities with you.

The stakes in this competition are high. Space technology and space exploration make up the internationally most visible and internationally most exciting area in the across-the-board competition in which we are engaging the Soviet Union. But we can excel only by defining our objectives, plotting a course toward them, and managing our resources in a properly directed and fully sustained program effort on that course. This we believe we are doing.

To bring my part of this discussion to a close, let me give you a rough idea of our schedules for the next 8 to 10 years -- say 100 to 120 months.

We plan 96 launchings for purely scientific studies of space.

There will be 33 missions for lunar and planetary investigations.

There will be 28 satellites put up for practical applications and useful work.

There will be 41 missions directly related to manned space flight.

And there will be 62 launchings required for the development of launch vehicles.

The total ~~is~~ approximates 260 launchings, so we should average better than 2 shots a month if we are to keep this pace. Thus far we have failed to attain a satisfactory level of sustained launch activity but improvements are apparent and our ratio of successes to failures is increasing.

As to milestones in the future, we expect to achieve the first suborbital flight of an astronaut sometime this winter.

// Highlights of next year's plan include an orbital flight of an astronaut in the Mercury capsule, and the first launching of the Atlas-Centaur launch vehicle //

Early in 1962, we should launch the first lunar impact spacecraft ~~vehicle~~ and later in the year the first instrumented probe into the vicinity of Venus or Mars.

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In the '62-'63 period, we have targeted the first two and three stage launchings of Saturn. The three stage version of this vehicle will have a 20,000-pound low orbit payload capability.

In 1963, we plan the first launching of an unmanned vehicle for a controlled landing on the moon and the first launching of an orbiting astronomical observatory.

Before the end of '64, we expect to send a vehicle around the moon and bring it back to earth and to make our first unmanned reconnaissance of Venus or Mars, or both.

For 1965, we are pushing for the first flight test of a nuclear second stage vehicle.

In the 1965-67 period, we will begin the launching series leading to manned circumnavigation of the moon and the establishment of a near-earth space station.

Early in the '70's, we will be expecting to land a man on the moon.

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As I call on Dr. Silverstein, perhaps I should give you one or two definitions we have adopted in our business. A spacecraft, as we use the term, is the structure that is intended to be placed in orbit or propelled into deep space. The spacecraft includes the supporting airframe, the payload instrumentation, telemetry, guidance and auxiliary propulsion, if any, required for maneuvering in space.

A launch vehicle is the rocket or rocket system including propellants and guidance necessary to achieve the desired injection into orbit of the spacecraft.

Combine the two and we would say that you have a space vehicle.

And now, gentlemen, Dr. Silverstein will describe the activities for which he has responsibility -- our space flight programs.